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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,061	03/01/2002	Gary Qu Jin	12917-US	8160
33361	7590	09/20/2005	EXAMINER	
ADAMS PATENT & TRADEMARK AGENCY P.O. BOX 11100, STATION H OTTAWA, ON K2H 7T8 CANADA			WANG, TED M	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,061

Applicant(s)

JIN, GARY QU

Examiner

Ted M. Wang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03/01/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 4-9, 11, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/01/2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/2/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- On page 1, line 16, change "ration" to --- ratio ---.
- On page 4, line 21 and 22, change "k1" to --- k_1 ---.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1 and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by the admitted prior art of the instant application.

- With regard claim 1, the admitted prior art of the instant application teaches a method of effecting peak reduction in a DMT signal, comprising the steps of creating a predetermined signature waveform, and subtracting said predetermined signature waveform from said DMT signal in the region of a signal peak whenever the DMT signal is above a predetermined maximum level (page 2 lines 1-3). Where the limitation of creating a predetermined signature waveform is inherent in the cited the admitted prior art of the instant application, i.e. the signature waveform must be existed or determined in order to be subtracted when the signal is larger than a maximum level.

- With regard claim 12, which is an arrangement claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the instant application in view of May et al. (EP 0 725510 A1).

- With regard claim 2, the admitted prior art of the instant application discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein said DMT signal is first passed through an IFFT unit which produces a time domain signal $x(k_1)$.

However, May et al., cited by the applicant, teaches that wherein said DMT signal is first passed through an IFFT unit (Fig.10 element 808 and column 9 lines 48 – column 10 line 18) which produces a time domain signal $x(k_1)$ (Fig.10 element 810 and column 9 lines 48 – column 10 line 18).

It is desirable that DMT signal is first passed through an IFFT unit which produces a time domain signal in order to reduce the occurrence of signal peaks in a DMT transmitter such that the power supply of the system can be raised, and/or

the probability of the signal clipping can be reduced (column 1 line 48 – column 2 line 49). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by May et al. in which, wherein said DMT signal is first passed through an IFFT unit which produces a time domain signal $x(k_1)$, into the admitted prior art of the instant application's method so as to reduce the occurrence of signal peaks in a DMT transmitter such that the power supply of the system can be raised, and/or the probability of the signal clipping can be reduced.

- With regard claim 10, the admitted prior art of the instant application discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein said signature waveform is generated by passing a predetermined waveform through a waveform modifying circuit on an iterative basis until the waveform change is insignificant between samples or a maximum number of iterations is reached.

However, May et al., cited by the applicant, teaches wherein said signature waveform is generated by passing a predetermined waveform through a waveform modifying circuit on an iterative basis until the waveform change is insignificant between samples or a maximum number of iterations is reached (Fig.4 elements 402-412, Fig.5 elements 508-516, Fig.10 elements 810, 812, 814, Fig.11 elements 908, column 4 line 55 – column 7 line 24, and column 9 line 48 – column 10 line 38).

It is desirable that said signature waveform is generated by passing a predetermined waveform through a waveform modifying circuit on an iterative basis

until the waveform change is insignificant between samples or a maximum number of iterations is reached. The reason for this is that If the average power is small compared to the magnitude threshold, a large peak can occur without exceeding the point where clipping occurs. One method of reducing the number of peaks exceeding the magnitude threshold for a fixed PAR is to reduce the average power of the signal. Although this reduces the occurrence of clipping, lower signal strength increases susceptibility to noise, which can cause other transmission problems. Another method of reducing the probability of clipping utilizes a larger power supply, which raises the magnitude threshold where clipping occurs. A larger power supply, however, increases cost and consumes excessive power and adds additional regulatory requirements (column 2 lines 26-49). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by May et al. in which, wherein said signature waveform is generated by passing a predetermined waveform through a waveform modifying circuit on an iterative basis until the waveform change is insignificant between samples or a maximum number of iterations is reached, into the admitted prior art of the instant application's method so as to reduce the occurrence of signal peaks in a DMT transmitter such that the power supply of the system can be raised, and/or the probability of the signal clipping can be reduced.

- With regard claim 13, which is an arrangement claim related to claim 2, all limitation is contained in claim 2. The explanation of all the limitation is already addressed in the above paragraph.

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6. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the instant application and May et al. (EP 0 725510 A1) as applied to claim 2 above, and further in view of Gatherer et al. (US 6,366,555).

- With regard claim 3, the admitted prior art of the instant application and May et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein said IFFT unit generates a first output M representing a maximal value of said signal $x(k_1)$ and a second output I representing the address location of the maximal value I in said signal $x(k_1)$.

However, Gatherer et al. teaches that wherein said IFFT unit generates a first output M representing a maximal value of said signal $x(k_1)$ and a second output I representing the address location of the maximal value I in said signal $x(k_1)$ (Fig.8 and column 10 lines 20-65, especially lines 53-61, where the step of performing IFFT to get signal point; recording the position and amplitude of any clip that would occur, i.e. it includes the maximum point amplitude and position.).

It is desirable to wherein said IFFT unit generates a first output M representing a maximal value of said signal $x(k_1)$ and a second output I representing the address location of the maximal value I in said signal $x(k_1)$. The reason for this is that the steps of performing an IFFT to get signal point; recording the position and amplitude of any clip that would occur if the signal point were clipped; if no clipping occurs return the signal point and terminate; if clipping does occur, to each signal point add the scaled shaping function and perform a circular shift so it is centered about the clipping position so that the clip level is reduced and the performance is improved (column 10 lines 53-63). Therefore, It would have

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been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Gatherer et al. in which said IFFT unit generates a first output M representing a maximal value of said signal $x(k_1)$ and a second output I representing the address location of the maximal value I in said signal $x(k_1)$, into the admitted prior art of the instant application and Mays' PAR reduction method so as to improve the system performance by reducing the clip level.

- With regard claim 14, which is an arrangement claim related to claim 3, all limitation is contained in claim 3. The explanation of all the limitation is already addressed in the above paragraph.

Allowable Subject Matter

7. Claims 4-9, 11, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Reference(s) US 6,424,281, US 6,529,925 and Zekri et al. (DMT signals with low peak-to-average power ratio; Computers and Communications, 1999. Proceedings. IEEE International Symposium on 6-8 July 1999 Page(s): 362 - 368 Digital Object Identifier 10.1109/ISCC.1999.780920) are cited because they are put pertinent to the PAR reduction. However, none of references teach detailed connection as recited in claim.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053.


The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang



STEPHEN CHIN
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